duration on the most recent ECG.
Results: A total of 1,134 patients were actively enrolled in the program, of which 592 (52%) had EF ≤0.35. Out of this group, 62 (10%) were in atrial fibrillation or flutter and 55 (9%) had a preexisting pacemaker, which would have excluded them from entry into MIRACLE. The table lists the demographics and ECG characteristics of the remaining 475 patients who were in sinus rhythm.
Table. Demographics and ECG characteristics of 475 patients with EF ≤0.35.

	N (%)
Age <65 years	186 (39%)
≥65 years	289 (61%)
Male	317 (67%)
Left bundle block	76 (16%)
Right bundle block	32 (7%)
IVCD†	99(21%)
QRS <130ms	357 (75%)
≥130ms	118 (25%)

† QRS ≥110ms but neither left nor right bundle block.
Conclusion: Among 592 patients with symptomatic heart failure enrolled in a CHF care management program who have EF ≤0.35, 118 (20%) met the ECG entry criteria used in the MIRACLE study.

1090-19 **Rapid Detection of Atrial Tachyarrhythmia in Pacemaker Patients Using Home Monitoring**

Andreas Hartmann, Christoph Stellbrink, Jas Gill, Massimo Santini, Eckhart Wunderlich, Diran Igidbashian, St. Georg Hospital, Leipzig, Germany

Background: The current standard pacemaker follow-up scheme consists of regular clinical examinations every 3 to 6 months. This may entail a significant delay for the reaction to cardiac events, e. g. atrial tachycardia (AT), especially if asymptomatic. Home Monitoring (HM) may present a solution, as it offers frequent data transmission from the implant to the physician.
Methods: In a European multicenter clinical investigation, patients having indications for dual chamber pacing have been implanted with the pacemaker BA03 DDDR (Biotronik Inc.). The BA03 offers HM, i.e. automatically daily transfers a survey on mean ventricular rate, prevalence of intrinsic atrial and ventricular rhythm, atrioventricular conduction, and ventricular extrasystole via a GSM-net based mobile phone to a HM service center. The service center immediately sends the data to the physician via fax as so-called Cardio Report showing the latest data and the preceding data in tables and graphs. A patient may additionally trigger messages by applying a magnet. Primary endpoint of the study is the reliability of HM and will be presented elsewhere. We analyzed the clinical value of the transmitted data with respect to diagnosis of AT.
Results: Hundred twenty two patients have been included. Follow-up with HM lasted 82 ± 23 days (mean ± SD). 8425 HM messages are considered for the analysis. For 8 patients, AT were documented by conventional means (24-h long-term-ECG, symptoms). The onset of these AT could all be directly correlated to coincident changes of mean heart rate and atrioventricular synchrony in the HM data. However, similar changes were observed for 26 other patients. For 7 of these, the changes in HM parameters could be correlated to other clinically relevant events, like lead dislocation and undersensing. Ten of the remaining patients were known to have paroxysmal AT, although no event could be documented by conventional means during inclusion. For the other 9 patients, the origin is unclear.
Conclusion: Home Monitoring offers the possibility for improving follow-up of pacemaker patients by reducing reaction time to clinically relevant events. Sensitivity to AT is sufficient, however, specificity has to be improved.

1090-20 **A Randomized Study of Three Tilt Test Protocols With Long-Term Follow-Up by Implantable Loop Recorder**

David J. Farwell, Neil Sulke, Eastbourne General Hospital, Eastbourne, United Kingdom

Background: Head-Up tilt testing is an important tool in the diagnosis of syncope. We prospectively evaluated the clinical impact of three separate protocols. **Methods:** 214 patients with recurrent syncope were randomized to one of three tilt protocols, Drug Free, GTN and Adenosine, with upright carotid sinus massage. Tilts were terminated at the onset of syncope, when systolic BP reached 60 mmHg or in the presence of prolonged hypotension (>3mins systolic BP<80mmHg). Appropriate empiric therapies were commenced according to the result of the tilt test. 103 Patients were randomized to implantable loop recorder use & follow up, to cross correlate spontaneous syncopal events to tilt result, thus estimating the true sensitivity and specificity of tilt testing. Results were classified according to published criteria. **Results:** 13 patients recived pacemakers for class I indiacations.

Tilt Test Result

	Adenosine	Drug Free	GTN	All
Negative	75%	56%	24%	52%
Vaso vagal	15%	21%	55%	33%
CSH	10%	7%	3%	6%
Aut. Fail.	0	10%	2%	4%
Pseudseizure	0	1%	3%	1%
POTS	0	1%	3%	1%
Intolerant	0	1%	5%	2%

All three protocols gave similar VASIS classification results. We were able to correlate spontaneous syncope to tilt result in 34 patients. Sensitivities for all (combined protocols), adenosine, GTN and drug free protocols were 33%, 33%, 100% and 0% respectively. Specificities were 84%, 100%, 80%and 71% respectively. **Conclusions:** A diagnosis was made in 47% of patients with syncope using tilt testing. The GTN protocol gave the most true positive results with the best sensitivity and specificity.

ORAL CONTRIBUTIONS

803 Atrial Fibrillation Management

Monday, March 31, 2003, 9:15 a.m.-10:30 a.m.
McCormick Place, Room S102

9:15 a.m.

803-1 **The Canadian Registry of Atrial Fibrillation: Lack of Prognostic Differences Between Atrial Fibrillation and Atrial Flutter**

Paul A. LeLorier, Karin H. Humphries, Andrew Krahn, Stuart Connolly, Mario Talajic, Martin Green, Robert Sheldon, Paul Dorian, David Newman, Charles R. Kerr, Raymond Yee, George J. Klein, Boston Medical Center, Boston, MA, University of Western Ontario, London, ON, Canada

Background: The incidence of stroke is widely believed to be lower in atrial flutter (AFL) than in atrial fibrillation (AF) since the former represents an organized atrial rhythm. Convincing data to support this belief are not available. Methods: Between 1991 and 1996, 1097 patients were enrolled in Canadian Registry of Atrial Fibrillation (CARAF) from six major clinical centers throughout Canada. Of these, 94 patients with atrial flutter (AFL) and 787 with atrial fibrillation (AF) met inclusion criteria. Patients were followed annually for a median of 6.9 years and 61.7% were male. End-points were compared between patients with AFL and AF using Cox proportional hazards models for time-to-stroke and mortality adjusted for warfarin use and cardioversions. Results: The stroke rate was 1.3%/person-year in the AF group and 1.2%/person-year in the AFL group. The death rate was 3.5%/person-year in the AF group and 2.9%/person-year in the AFL group. The hazard ratio of AFL versus AF for stroke was 0.78 (CI 0.33 to 1.82) (p=0.56) and for mortality 0.71 (CI 0.42 to 1.20) (p=0.2). Age, history of stroke, diabetes, valvular heart disease, congestive heart failure, left ventricular hypertrophy and a hypokinetic ventricle were associated with increased mortality, regardless of rhythm. The same risk factors, with the exception of diabetes and congestive heart failure, were associated with stroke, regardless of rhythm. The use of warfarin was the same in both groups (p=0.1). Conclusions: Neither risk of stroke nor mortality differed between patients with AFL and AF. These results suggest the indications for anticoagulation should be the same for patients with either rhythm.

9:30 a.m.

803-2 **Determinants of Improvement of Quality of Life in Persistent Atrial Fibrillation: Data From the RACE Study**

Vincent E. Hagens, Adelita V. Ranchor, Eric Van Sonderen, Jan H. Kingma, Hans A. Bosker, Otto Kamp, Tsjerk Kingma, Harry J. Crijns, Isabelle C. Van Gelder, for the RACE Investigators, University Hospital, Groningen, The Netherlands

Background: Persistent atrial fibrillation (AF) may cause symptoms like fatigue, and dyspnea. This can impair quality of life (QoL). Treatment of AF with either rate or rhythm control may influence QoL. We sought to determine indicators of QoL changes during long-term follow-up.
Methods: In 352 patients included in the RACE study (rate versus rhythm control in persistent AF), QoL was assessed. Rate control patients (n=175) received negative chronotropic drugs, and oral anticoagulation (OAC). Rhythm control patients (n=177) underwent serial electrocardioversion, antiarrhythmic drugs, and OAC as needed. QoL was assessed using the Short Form (SF)-36 health survey questionnaire at baseline and end of study (EoS), after 2-3 years follow-up. Baseline and follow-up characteristics related to QoL improvement were determined.
Results: Mean age is 68 ± 9 years, present AF duration 1 month, 80% had underlying heart disease (49% class I, and 49% class II for heart failure), 70% had complaints of AF at inclusion. At the EoS, 10% versus 40% in rate versus rhythm control group were in sinus rhythm, respectively. Stepwise regression analysis showed that in the total group, sinus rhythm at EoS was related to a significant improvement of QoL (physical function-